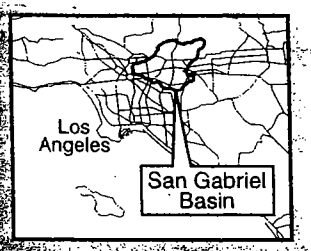
EPA San Gabriel Valley Superfund Sites / Baldwin Park Operable Unit

U.S. Environmental Protection Agency • Region 9 • San Francisco, CA • May 1999



EPA Updates Cleanup Plan for the Azusa-Irwindale-Baldwin Park Area

Los Angeles County, California

The United States Environmental Protection Agency (EPA) is updating the Superfund cleanup plan for the Baldwin Park area of the San Gabriel Valley in response to the discovery, in 1997 and 1998, of several new pollutants in the groundwater. The EPA adopted the cleanup plan in 1994, after extensive public comment. The newly discovered chemicals include perchlorate, N-nitrosodimethylamine (NDMA), and 1,4-dioxane. Perchlorate is used in solid rocket fuel; NDMA has been found in liquid rocket fuel; and 1,4-dioxane has been used as a stabilizer in chlorinated solvents. Discharges of these chemicals to the ground are believed to have stopped many years ago, but a significant amount of contamination has reached the groundwater basin and requires cleanup. In addition to perchlorate, NDMA, and 1,4-dioxane, groundwater in the Baldwin Park area is contaminated with perchloroethylene (PCE), trichloroethene (TCE), and other chlorinated solvents. Chlorinated solvents are sometimes referred to as *volatile organic compounds* or VOCs.

The discovery of perchlorate, NDMA, and 1,4-dioxane will change the cleanup project, known as the Baldwin Park Operable Unit (OU), in three ways:

1) Additional treatment processes must be used to reduce perchlorate, NDMA, and 1,4-dioxane concentrations in the groundwater to safe levels. The technologies typically used to remove chlorinated solvents from water (air stripping and carbon adsorption) will not effectively remove perchlorate, NDMA, or 1,4-dioxane. Final decisions on treatment processes will be made during remedial design, later this year or early next year.

2) More of the treated groundwater is expected to be used locally, to replace water supplies lost when perchlorate and NDMA forced local water companies to shut down some groundwater wells. Previously, local agencies were advocating the export of most of the treated groundwater to communities outside of the San Gabriel Valley.

3) Some of the groundwater extraction wells will be located further south than previously planned to prevent the spread of perchlorate and NDMA, as well as VOCs, to clean portions of the groundwater basin.

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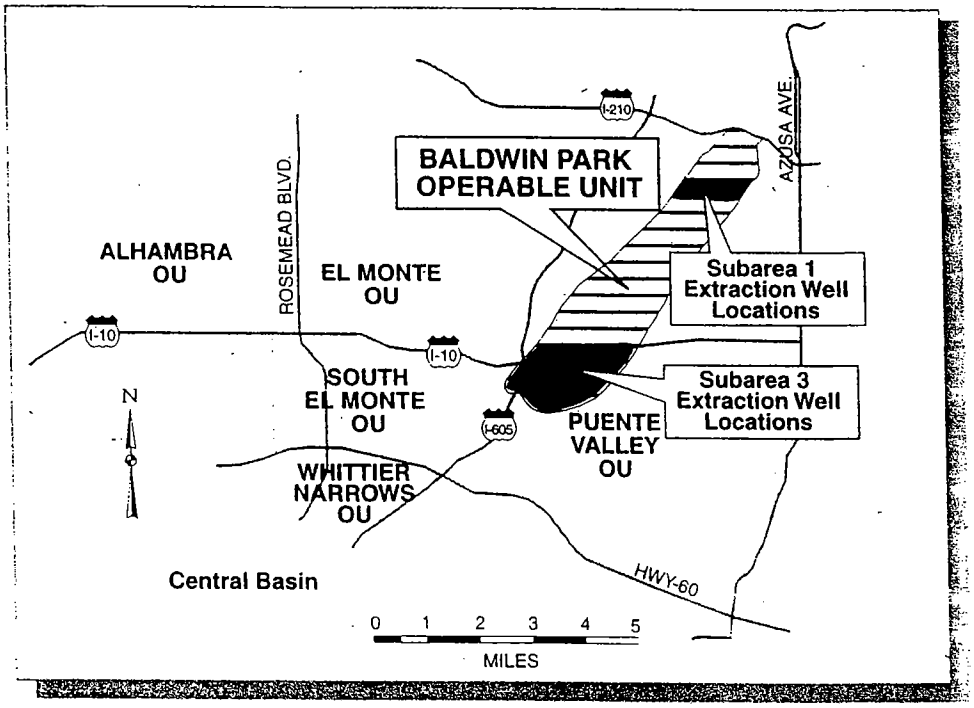

Figure 1: Location map of the Baldwin Park Operable Unit and other San Gabriel Valley Superfund Site Projects

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Catherine McCracken, Community Involvement Specialist
U.S. Environmental Protection Agency Region 9
75 Hawthorne Street (SFD-3)
San Francisco, CA 94105

These changes have delayed construction of the cleanup facilities by about two years while tests of perchlorate treatment technologies and changes to the groundwater extraction plan are completed. The treatment studies and updated extraction plan are almost complete. The changes will significantly increase the cost of cleanup, as described below.

If and when significant changes are needed in a Superfund cleanup plan, the EPA informs the community through an Explanation of Significant Differences. This fact sheet is intended to fulfill that requirement. We welcome comments on new aspects of the cleanup highlighted in this fact sheet and on other issues raised by the discovery of perchlorate, NDMA, and 1,4-dioxane in the Baldwin Park area. We will, if appropriate, make additional changes in the cleanup plan in response to comments. EPA previously requested and considered comments on other aspects of the cleanup in 1993. The State of California, through its Department of Toxic Substances Control, supports the changes described in this fact sheet.

The remainder of the fact sheet provides a brief history of the Baldwin Park cleanup, summarizes the 1994 cleanup plan, and describes the changes to the 1994 plan in more detail.

The Baldwin Park Cleanup: A Brief History

1994: EPA Adopts Cleanup Plan

On March 31, 1994, the EPA adopted a cleanup plan for the Azusa-Irwindale-Baldwin Park area known as the *Baldwin Park Operable Unit Record of Decision*. The plan addresses a several-mile-long area of groundwater contamination in the San Gabriel Valley. The contamination results from the use and improper handling and disposal of carbon tetrachloride (CTC), PCE, TCE, and other chemicals. These chemicals were used in large quantities at industrial facilities in Azusa and surrounding areas as early as the 1940s, and by hundreds of businesses in the 1960s, 1970s and 1980s for degreasing, metal cleaning, and other purposes. The chemicals were probably released to the ground by a combination of onsite disposal, careless handling, leaking tanks and pipes, and other means.

The groundwater contamination was discovered in 1979. In 1984, the EPA added four portions of the San Gabriel Valley to the national Superfund list. The Baldwin Park area is officially known as the *San Gabriel Valley Area 2* Superfund site. Subsequent investigation by the EPA and others revealed the tremendous extent of groundwater contamination. During the past 15 years, more than one-quarter of the approximately 366 water supply wells in the San Gabriel Valley have been found to be contaminated. In response to the contamination, water companies have shut down contaminated wells, installed new treatment facilities, and taken other steps to ensure that they can continue to supply water meeting State and Federal drinking water standards.

The EPA's 1994 cleanup plan calls for the extraction and treatment of contaminated groundwater from two broad subareas of contamination. The northernmost of the two subareas is termed *Subarea 1*. Subarea 1 includes most of the known sources of the groundwater contamination, where contaminant concentrations in groundwater are hundreds of times drinking water standards. The southernmost subarea is termed *Subarea 3*, where contaminant concentrations are lower but still

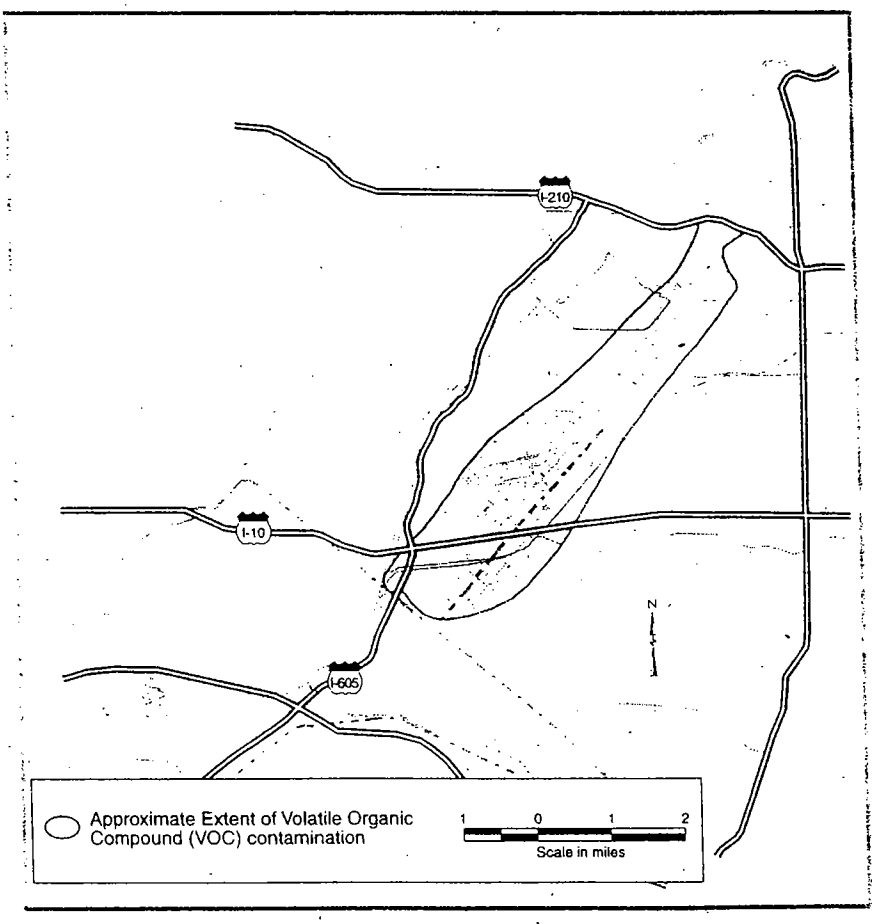

Figure 2: Approximate extent of VOC contamination in groundwater in the Azusa-Irwindale-Baldwin Park area.

exceed drinking water standards (see Figure 1).

The goals of the 1994 cleanup plan are to limit the movement of contaminated groundwater to clean or less contaminated areas and depths, remove a significant mass of contamination from the groundwater, and provide the data necessary to determine final clean up standards for the area. The plan calls for the construction and operation of groundwater extraction wells, treatment facilities, and conveyance facilities capable of pumping and treating approximately 19,000 gallons per minute of contaminated groundwater. The plan recommends the use of existing water supply wells, treatment systems, and pipelines to the extent possible, and the construction of new facilities where needed. Final decisions on extraction rates and locations were to be made during remedial design. In 1994, the EPA estimated the cost of the cleanup at $47 million in capital costs and $4 million/year for operation and maintenance. EPA's revised cost estimate is $85 million in capital costs and $10 million/year for operation and maintenance

1995 - 1997: Potentially Responsible Parties (PRPs) Complete Pre-Design Work

In January 1995, the EPA began to name the companies responsible for the groundwater contamination. To date, the EPA has named 19 companies and property owners as Potentially Responsible Parties, also known as PRPs. In late 1995, a majority of these companies organized themselves into a group named the Baldwin Park Operable Unit Steering Committee. From 1995 to early 1997, the Steering Committee funded more than $2 million of *pre-design* work needed as part of the cleanup. The Steering Committee installed and sampled a network of eight deep groundwater monitoring wells to improve our understanding of the extent of contamination and developed a detailed groundwater extraction plan. During this period, negotia-

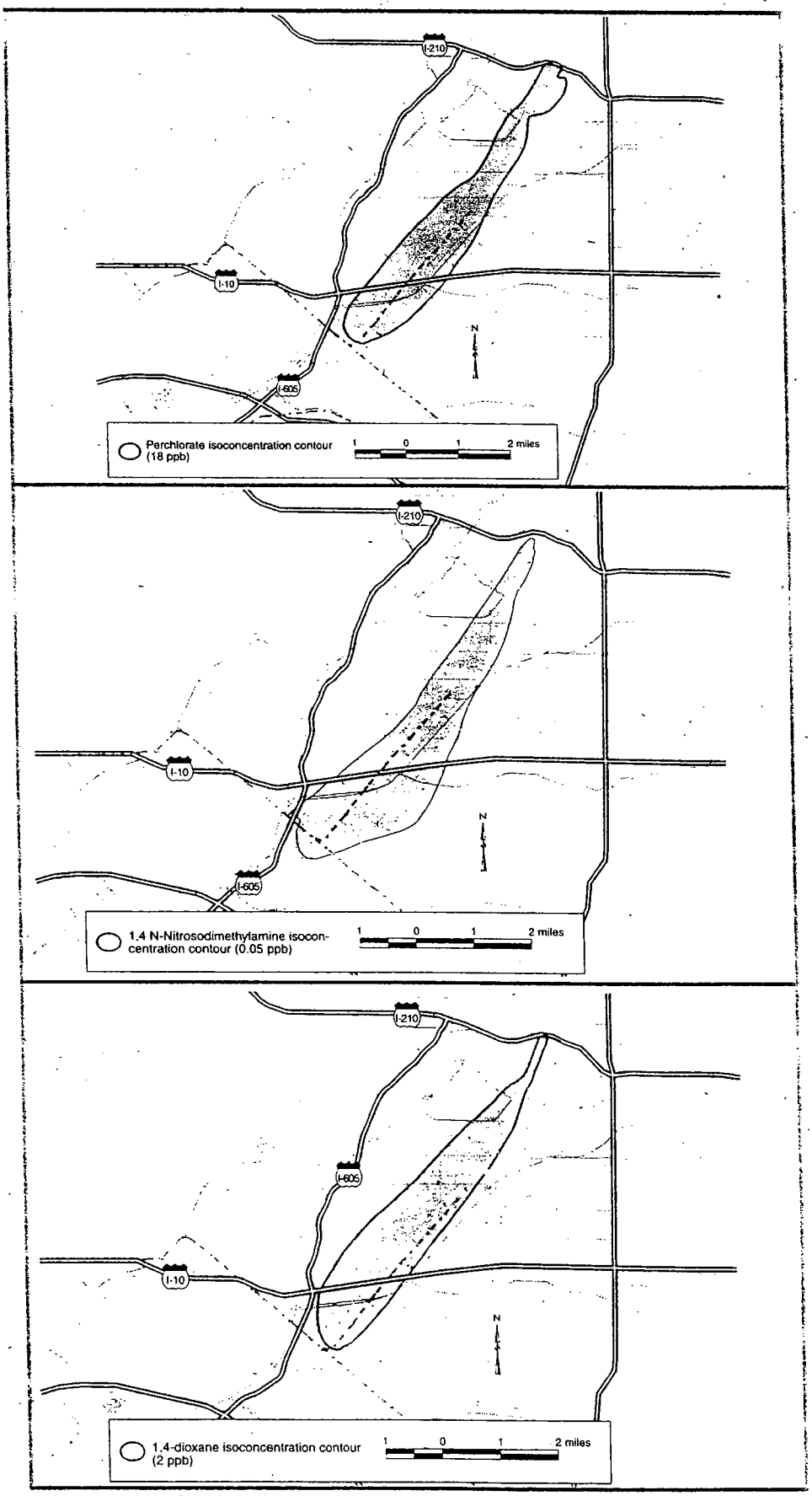

Figure 3: Approximate extent of perchlorate, NDMA and 1,4-dioxane contamination in groundwater

tions with water agencies continued, and a tentative water distribution and use plan was developed which called for delivery of the treated groundwater to the Metropolitan Water District of Southern California. The plan, labeled the *Consensus Plan*, called for export of the treated groundwater to areas now dependent on more expensive and less dependable imported water, in order to reduce the region's dependence on imported water supplies and raise revenue through sales of the treated water.

1997 - 1999: Discovery of Perchlorate Extends Negotiations and Triggers Need for Additional Pre-Design Work

In May 1997, the EPA sent *Special Notice* letters to 19 PRPs to begin formal EPA-PRP negotiations. The EPA's purpose in initiating the negotiations was to obtain a binding commitment from the PRPs to carry out the Baldwin Park cleanup plan (i.e., to design, construct, and operate the groundwater extraction, treatment, and delivery facilities). The negotiations were expected to conclude in late 1997, but the discovery in June 1997 of perchlorate at levels above 18 parts per billion (ppb) in groundwater forced an extension in the negotiations. At that time, no one knew the extent of perchlorate contamination in the Baldwin Park area and little was known about the cost, effectiveness, and reliability of possible treatment methods.

The discovery of perchlorate occurred soon after the California Department of Health Services developed an improved analytical method capable of detecting perchlorate at concentrations as low as 4 ppb in groundwater. The EPA had attempted to determine whether perchlorate was present in the groundwater in the mid 1980s, but the analytical methods available at the time were not capable of determining with certainty whether perchlorate was present. NDMA and 1,4-dioxane were discovered in the Baldwin Park area in 1998.

The highest concentrations of perchlorate, NDMA, and 1,4-dioxane are found in the groundwater in Azusa, in Subarea 1. Maximum concentrations of perchlorate and NDMA are more than 100 times the State drinking water action levels of 18 and 0.002 ppb respectively. The maximum concentration of 1,4-dioxane is more than 20 times the State drinking water action level of 3 ppb. Up to six miles downgradient of the industrial source area in Azusa, at the likely groundwater extraction locations in Subarea 3, perchlorate and NDMA concentrations remain above State action levels. The concentration of 1,4-dioxane in this area has, to date, been below the State action level. Figure 3 depicts the approximate extent of perchlorate, NDMA and 1,4-dioxane contamination in groundwater in the Baldwin Park OU.

In response to the discovery of perchlorate, the EPA extended its formal negotiations with the PRPs until July 1999. In exchange for the extension, the Steering Committee agreed to immediately proceed to complete additional predesign work. The additional work included completion of a pilot-scale study of one perchlorate-removal technology (biological treatment); support for studies of a second perchlorate-removal technology (ion exchange); installation of four additional groundwater monitoring wells to help define the extent of perchlorate, NDMA, and 1,4-dioxane contamination; and revisions to the groundwater extraction plan. The ion exchange studies have been funded largely by the Main San Gabriel Basin Watermaster.

The treatment studies have successfully demonstrated that both technologies can remove perchlorate from groundwater down to non-detectable levels. Pilot-scale studies were not needed for NDMA or 1,4-dioxane removal, because experience at other sites has demonstrated that NDMA and 1,4-dioxane can be removed down to non-detectable levels using commercially-available treatment systems. See page 6 for a more detailed description of perchlorate, NDMA, and 1,4-dioxane treatment technologies. The additional treatment technologies needed to remove the new contaminants are responsible for most of the increase in the estimated cost of the cleanup.

At the same time that the treatment studies have been underway, the EPA, the PRPs, and local water agencies have continued efforts to determine the best use of the treated groundwater. Although no final decisions have been made, there has been a renewed interest in recent months in using the treated groundwater *within* the San Gabriel Basin, rather than exporting the water out of the Basin. This change in interest resulted in part because perchlorate and NDMA have forced water companies to shut down several water supply wells in the San Gabriel Basin, prompting water companies to look for additional supplies of clean water to replace the lost production. Ultimately, it is likely that much of the treated water will be used locally, but some may still be exported outside of the San Gabriel Basin. Since late 1998, discussions have been underway between the EPA, the PRPs, the Main San Gabriel Basin Watermaster, and affected water companies. The Watermaster and the affected water companies are interested in taking responsibility for building and operating some or all of the Baldwin Park cleanup facilities.

There are also multiple efforts underway to reduce the PRPs' share of the cleanup costs by securing other sources of funding. A Federal grant provided through the U. S. Bureau of Reclamation has paid for more than $1 million in predesign costs and is expected to provide additional money for

Table 1. Comparison of Cleanup Plans - Most Aspects of the 1994 Plan Have Not Changed

	ORIGINAL CLEANUP PLAN	UPDATED CLEANUP PLAN
Remedial Objectives	Limit further migration of contaminated groundwater, begin to remove contamination from the groundwater, and provide data necessary to determine final clean up standards	Same
Groundwater Extraction Areas	Extract groundwater from two broad areas of contamination (Subareas 1 and 3)	Same, except Subarea 3 is extended further south
Groundwater Extraction Rates	Extract contaminated groundwater at rates needed to meet remedial objectives. Determine final rates during remedial design. Initial estimate was 19,000 gpm	Same. Revised estimate is 20,000-21,000 gpm
Groundwater Treatment Technologies	Use air stripping, carbon treatment, and/or oxidation technologies to remove VOCs from the groundwater. Select technologies during remedial design	Use same technologies to remove VOCs. Also use ion exchange or biological treatment to remove perchlorate, UV light to remove NDMA, and UV oxidation to remove 1,4-dioxane. Select technologies during remedial design
Groundwater Treatment Standards	Design treatment systems to reduce contaminant concentrations to below MCLs	Reduce contaminant concentrations to below MCLs and reduce perchlorate, NDMA, and 1,4-dioxane concentrations to below State action levels
Use of Treated Groundwater	Supply to water companies for distribution, and/or recharge into the groundwater basin. Make final decision during remedial design	Same
Project Costs	Estimated capital costs of $47 million; estimated operation and maintenance costs of $4 million/year	Estimated capital costs increase to $85 million; estimated operation and maintenance costs increase to $10 million/year

design and construction costs (up to 25% of the project's capital costs). In March 1999, three of the San Gabriel Valley's U.S. Congressional Representatives cosponsored the San Gabriel Basin Drinking Water Initiative, which would, if it became law, provide up to $75 million in additional Federal funding for groundwater cleanup in the Baldwin Park area and other contaminated areas in the San Gabriel Valley and an additional $25 million for research on perchlorate treatment technologies.

The cleanup plan remains protective of human health and the environment and will continue to meet all applicable or relevant and appropriate requirements identified in the 1994 Record of Decision, as required by CERCLA Section 121(d).

Schedule

- **Spring 1999** - Design of treatment facilities at the La Puente Valley County Water District (LPVCWD) wellfield
- **Summer 1999** - Construction of treatment facilities at the LPVCWD wellfield
- **July 1999** - Deadline for Potentially Responsible Parties to submit a *Good Faith Offer* committing to design, construct, and operate the Baldwin Park cleanup facilities
- **Fall 1999** - Deadline for negotiation of Consent Decree
- **Late 1999-2001** - Design of remaining Baldwin Park cleanup facilities
- **2001-2003** - Construction of remaining Baldwin Park cleanup facilities

Treatment Options

Perchlorate

Since 1997, when perchlorate was discovered in the San Gabriel Valley groundwater basin, much progress has been made in developing treatment methods capable of removing perchlorate from the groundwater. Most of the attention has been directed at two technologies: biological treatment and ion exchange.

In the biological treatment process, microbes destroy perchlorate by converting the perchlorate ion to oxygen and chloride. Oxygen and chloride are present at low levels in all drinking water. Nutrients must be added to sustain the microbes. The Steering Committee has completed a six month pilot-scale study of an anaerobic biological process, demonstrating the reduction of perchlorate from approximately 75 ppb to below detectable levels. The same process is being used in a recently-constructed full-scale treatment system at the Aerojet Superfund Site in Northern California. A similar process has also been used at a Utah facility to treat non-potable wastewaters resulting from the manufacture and maintenance of rocket motors.

Biological treatment methods are capable of producing potable water, but additional testing must be completed to determine whether a biological process can reliably and cost-effectively remove perchlorate and produce drinking quality water. The necessary tests are planned for later this year, when a 300-500 gallon per minute biological treatment system should be in operation. The treatment system is expected to include a biological reactor, followed by a biologically-active multimedia filter and granular activated carbon (GAC) *polishing treatment* (see Figure 4). The system will also include ultraviolet light treatment for removal of NDMA and VOCs. Biological treatment methods are new to many water utilities, but *biologically active* filters have been used in drinking water treatment for decades to help remove particles and biodegradable organic matter.

The second of the two perchlorate-removal technologies receiving the most attention is ion exchange, in which the perchlorate ion is replaced by chloride, a chemically similar but non-toxic ion. Ion exchange processes have been used in homes and businesses for *softening* hard water for decades. Bench- and pilot-scale studies have demonstrated that ion exchange systems can reliably reduce perchlorate concentrations in San Gabriel Valley groundwater from approximately 75 ppb to below detectable levels. The studies have also provided valuable information on resin selection and regeneration, brine volume, and cost that will guide the design and operation of full scale systems. By summer 1999, a 2500 gallon per minute ion exchange system is expected to go online, producing potable water for use in the San Gabriel Valley.

The principal disadvantage of ion exchange systems is that they produce a concentrated brine that requires disposal and/or further treatment. Research is underway to try to identify methods of reducing the volume of perchlorate-contaminated brines to reduce the high cost of disposal.

What are Perchlorate, NDMA, and 1,4-Dioxane?

Perchlorate is a highly soluble inorganic molecule made of chlorine and oxygen. Its chemical formula is ClO_4^-. In solid form, as ammonium perchlorate, it is highly explosive. At low concentrations in water, as is found in the San Gabriel groundwater basin, perchlorate is unreactive and persistent. Ammonium perchlorate and potassium perchlorate were used at two facilities in Azusa in the 1940s in the testing of solid fuel rockets and the manufacture of photoflares. Ammonium perchlorate is still in use today - in the solid fuel rockets that launch the space shuttle, in some missiles and fireworks, and other applications.

NDMA (N-nitrosodimethylamine) is a highly soluble organic chemical that was used, until about 1976, in the production of the liquid rocket fuel 1,1-dimethylhydrazine (also known as unsymmetrical dimethylhydrazine [UDMH]). NDMA has reportedly been present as an impurity in UDMH, and may be formed as a result of the chemical breakdown of UDMH. NDMA has been detected at trace levels in some manufactured products and foods, and can reportedly be produced as a byproduct of a number of chemical reactions. Its chemical structure is $(CH_3)_2N\text{-}N{=}O$. Hydrazine-containing fuels were used in Azusa as early as the 1940s.

The chemical *1,4-dioxane* is a highly soluble compound used as a stabilizer in chlorinated solvents, particularly 1,1,1-trichloroethane. Its chemical formula is $C_4H_8O_2$. It belongs to a class of organic compounds known as ethers. It is a different chemical than the similar-sounding dioxins. Chlorinated solvents likely to have contained 1,4-dioxane, including 1,1,1-trichloroethane, have been used in Azusa and Baldwin Park for many years.

An added benefit of both biological treatment and ion exchange processes is that they would also remove much of the nitrate from the water. The groundwater in some parts of the San Gabriel Valley is unusable because of high levels of nitrate. The nitrate is believed to result from past agricultural practices in the Valley.

Two other technologies have also been demonstrated to be capable of removing perchlorate from water, but probably at higher cost. Reverse osmosis and nanofiltration were tested by researchers at the Metropolitan Water District of Southern California and shown to be effective in removing perchlorate, but they are likely to be much more expensive to operate than ion exchange processes or biological treatment. Liquid phase granular activated carbon (GAC) also removes perchlorate, but only for a limited period of time before regeneration or replacement of the carbon is required. Frequent carbon replacement would make relying solely on GAC for perchlorate removal very expensive. Perchlorate cannot be removed from water by conventional filtration, sedimentation, or air stripping technologies.

NDMA and 1,4-Dioxane Treatment

NDMA can be removed from groundwater by ultraviolet (UV) light treatment. In a UV treatment system, the water passes though a tank containing high-intensity ultraviolet lamps. The NDMA molecules absorb the light energy and are broken down into smaller nontoxic molecules. The chemical 1,4-dioxane can also be removed by UV light treatment, in combination with an oxidant such as hydrogen peroxide. UV treatment systems have been successfully built and operated to remove both chemicals from water in locations throughout the United States.

Treatment Levels

The treatment technologies used at the Baldwin Park Operable Unit will have to be capable of effectively and reliably removing VOCs, perchlorate, NDMA, and 1,4-dioxane from the groundwater. If any of the treated groundwater is to be used as drinking water, the treatment technologies must reduce the concentrations of all contaminants to below Federal and State drinking water standards in existence at the time that the water is served. These standards, known as Maximum Contaminant Levels (MCLs), must be met at the tap. There are MCLs for some but not all of the chemicals present in the groundwater in the Baldwin Park area.

Safe levels for some chemicals that lack MCLs are specified by *action levels* developed by the California Department of Health Services (DHS). There are action levels for perchlorate (at 18 ppb); NDMA (at 0.002 ppb); and 1,4-dioxane (at 3 ppb). Although not an enforceable standard, an action level is the concentration of a contaminant in drinking water that DHS has determined, based on available scientific information, provides an adequate margin of safety to prevent potential risks to human health. California Health & Safety Code Section 116455 requires that the operator of a public water system notify local government authorities when a drinking water well exceeds an action level. In addition, DHS recommends that drinking water systems provide public notification if action levels are exceeded, unless the wells in question are taken out of service. Public water systems virtually always shut down wells if action levels are exceeded.

Accordingly, in any water to be served as drinking water, the concentrations of perchlorate, NDMA, and 1,4-dioxane will be reduced to below action levels in existence at the time the water is served.

EPA's cleanup plan also allows some or all of the treated water to be recharged back into the groundwater basin instead of being delivered as drinking water. As discussed

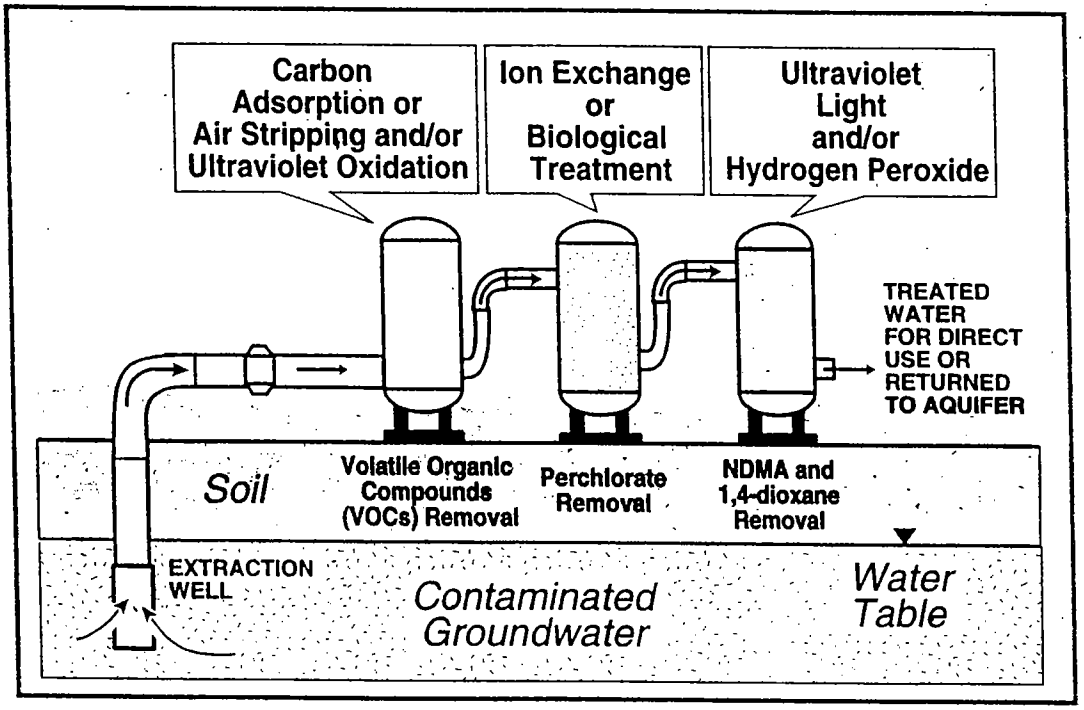

Figure 4: Groundwater treatment technologies

in greater detail in the Record of Decision, any water that is to be recharged must comply with the pertinent water quality objectives in the Los Angeles Regional Water Quality Control Board Basin Plan. In addition, State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," is applicable to any recharge of treated groundwater into the aquifer. Resolution No. 68-16 requires maintenance of existing State water quality unless it is demonstrated that a change will benefit the people of California, will not unreasonably affect present or potential uses, and will not result in water quality less than that prescribed by other State policies. In light of these requirements, any groundwater recharged into the aquifer will be treated to levels below action levels for perchlorate, NDMA, and 1,4-dioxane.

The treatment levels discussed above apply to the groundwater after it is pumped above ground. Neither the 1994 cleanup plan nor this update establish cleanup levels in situ (i.e., in the aquifer). EPA will propose in situ cleanup levels in a future action.

Final Selection of Treatment Technologies

The EPA believes that a final decision to select treatment technologies for the Baldwin Park Operable Unit should be deferred until later this year or early next year. That way, the results of continuing treatment studies in the San Gabriel Valley and elsewhere can be incorporated into the decision. By the end of 1999, it is likely that full scale ion exchange and biological treatment systems will be operating in the San Gabriel Valley, providing additional cost and performance data to guide the selection of treatment technologies.

EPA is issuing this Explanation of Significant Differences in part to satisfy its public participation responsibilities under CERCLA Section 117(c) and NCP Section 300.435(c)(2)(I).

Table 2. Status of the Five San Gabriel Valley Superfund Projects

U.S. EPA PROJECT	LOCATION	STATUS	UPCOMING ACTIONS
Baldwin Park Operable Unit (OU)	Portions of the cities of Azusa, Irwindale, Baldwin Park, and West Covina	Regional investigation completed; cleanup plan adopted; 19 PRPs identified; pre-design work completed.	See remainder of fact sheet for detailed update.
Whittier Narrows OU	In and adjacent to the Whittier Narrows Recreation Area	New cleanup plan proposed November 1998. No PRPs named.	Record of Decision expected by mid 1999. EPA-funded pre-design activities underway. Remedial Design to be completed in 2000.
Puente Valley OU	Portions of the cities of Industry and La Puente	More than 70 PRPs identified; regional investigation complete; cleanup plan adopted in September 1998.	EPA-PRP Consent Decree negotiations expected to begin in late 1999. Goal is to obtain a binding commitment from the PRPs to carry out the Puente Valley cleanup plan.
El Monte OU	Portions of the cities of El Monte and Temple City	20 PRPs identified; regional investigation completed; cleanup plan proposed in November 1998; seven early action monitoring wells installed	Record of Decision expected by June 1999. Formal EPA-PRP Consent Decree negotiations expected to begin later this year.
South El Monte OU	Portions of the cities of South El Monte, southern El Monte, and Rosemead	50 PRPs identified; regional investigation completed	Proposed cleanup plan expected by mid-1999.

Who's Who?

It's difficult to keep track of the many agencies and groups with a stake in the cleanup. Here is a quick summary of seven of the most active:

U.S. Environmental Protection Agency (EPA) - The EPA is ultimately responsible for cleanup of the groundwater contamination in the Basin, through the Superfund program. The Superfund program remains one of the most effective means of resolving the nation's historical contamination problems. The Federal law that established the program (known as CERCLA) includes a prohibition against lawsuits to delay or stop cleanup; stringent liability provisions to ensure that responsible parties pay; a trust fund of government money to be used if responsible parties fail to carry out their cleanup responsibilities; numerous opportunities for public involvement; and flexibility to tailor cleanup projects to reduce costs, meet local water supply goals, and satisfy other local needs.

Baldwin Park Operable Unit Steering Committee - The Steering Committee consists of a majority of the companies named as Potentially Responsible Parties. As of May 1999, 14 of the 19 companies named as PRPs were members of the Steering Committee. To date, the Steering Committee has spent more than $3 million on investigation and treatment work needed for the cleanup.

Main San Gabriel Basin Watermaster - The Watermaster was created by a judgment of the California Superior Court to manage the San Gabriel groundwater basin under the jurisdiction of the Court. In 1991, the Watermaster's management responsibilities were expanded to further the cleanup and help preserve the basin's water resources. The Watermaster has been the primary sponsor of the ion exchange studies recently completed in the San Gabriel Valley, and is interested in taking responsibility for building and operating some or all of the Baldwin Park cleanup facilities.

San Gabriel Basin Water Quality Authority (WQA) - The WQA is a public agency created by State legislation to assist in the cleanup of the San Gabriel Basin. The WQA has offered a variety of ideas on how to carry out the Superfund cleanups in the San Gabriel Valley, and has funded construction of several interim cleanup projects in the Valley. The WQA has the authority to raise millions of dollars in funds through a tax on water production in the Valley.

The California Department of Toxic Substances Control (DTSC) - The DTSC is a State agency which has also funded wellhead treatment facilities in the San Gabriel Valley, and serves as the support agency for all of the San Gabriel Valley Superfund cleanups.

The California Regional Water Quality Control Board - The Regional Board is a State agency which has worked cooperatively with EPA to identify the sources of soil and groundwater contamination in the San Gabriel Valley.

The California Department of Health Services (DHS) - The DHS develops California MCLs and action levels, and regulates and monitors approximately 8500 public drinking water systems in California. DHS staff have participated in the recent testing of perchlorate treatment technologies in the San Gabriel Valley, and must approve any treatment systems used in the Baldwin Park cleanup to provide potable water.

For Copies of Documents

This document will become part of the Administrative Record file for the Baldwin Park Operable Unit. To examine or obtain copies of this document or other documents related to this project, contact:

EPA Region 9 Superfund Records Center
95 Hawthorne Street
San Francisco, CA 94105 • (415) 536-2000

The Record Center's hours are 8:00 am to 5:00 p.m., Monday through Friday. The Superfund Records Center can make documents available for viewing in San Francisco, photocopy and mail requested documents, or create and send you a CD-ROM containing requested documents. A subset of documents related to the Baldwin Park Operable Unit is also available at:

West Covina Public Library &
1601 West Covina Parkway
West Covina, CA 91790
(626) 962-3541

Rosemead Library
8800 Valley Boulevard
Rosemead, CA 91770
(626) 573-5220

Call to check their hours. Documents available at all locations include:

Perchlorate Treatment Studies (prepared by Harding Lawson Associates for the Baldwin Park Operable Unit Steering Committee, unless noted otherwise)

09-29-1997 Draft Technology Screening for Treatability of Perchlorate in Groundwater, Baldwin Park OU
10-30-1998 Big Dalton Perchlorate Removal Pilot Study, prepared by Calgon Carbon Corporation for the Main San Gabriel Basin Watermaster (ion exchange)
02-12-1999 Final Phase 2 Treatability Study Workplan; Pilot Scale Groundwater Treatment System, Baldwin Park OU (biological treatment)
04-1999 Results of Bench-Scale and Pilot-Scale Studies of Ion Exchange for Perchlorate Removal, prepared by Montgomery Watson for the Main San Gabriel Basin Watermaster (ion exchange)
04-12-1999 Final Phase 1 Treatability Study Report, Perchlorate in Groundwater, Baldwin Park OU (biological treatment)

Groundwater Monitoring and Groundwater Extraction Plan (prepared by Harding Lawson Associates for the Baldwin Park Operable Unit Steering Committee, unless noted otherwise)

12-1996 Pre-Remedial Design Report..., Baldwin Park Operable Unit, prepared by Camp Dresser & McKee for the Baldwin Park Operable Unit Steering Committee
4-28-1998 Draft Phase 2A Well Installation and Groundwater Sampling Report..., Baldwin Park Operable Unit
1-21-1999 Draft Addendum to the Pre-Remedial Design Report, Baldwin Park Operable Unit

Information on Physical, Chemical, and Toxicological Properties of Perchlorate, NDMA, and 1,4-dioxane

7-1998 Action Level for N-NDMA (see DHS website: http://www.dhs.ca.gov/ps/ddwem/chemicals/ndma/ndmaindex.htm, updated 7/9/1998)
3-1999 Action Level for 1,4-dioxane (see DHS website: http://www.dhs.ca.gov/ps/ddwem/chemicals/mcl/mclindex.htm, updated 3/12/1999)
4-1999 Action Level for perchlorate (see DHS website: http://www.dhs.cahwnet.gov/org/ps/ddwem/chemicals/perchl/perchl_standards.htm, updated 4/23/1999)

For more information about the EPA Superfund Program and EPA activities in the San Gabriel Valley, check
- **EPA's national website: http://www.epa.gov**
- **EPA's Region 9 website: http://www.epa.gov/region09**

Public Comments Welcomed

We welcome comments on new aspects of the cleanup highlighted in this fact sheet, and on other issues raised by the discovery of perchlorate, NDMA, and 1,4-dioxane in the Baldwin Park area. Please send comments by July 2, 1999 to:

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75 Hawthorne Street (SFD-7)
San Francisco, CA 94105

phone: (415) 744-2256
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For More Information

For general questions about the EPA Superfund program and the San Gabriel Valley Superfund Sites, you may contact the following U.S. EPA staff:

- **Puente Valley and Alhambra Operable Units**
  Penny McDaniel (415) 744-2407
- **Baldwin Park Operable Unit**
  Wayne Praskins (415) 744-2256
- **El Monte and South El Monte Operable Units**
  Bella Dizon (415) 744-2155
- **Whittier Narrows Operable Unit**
  Doug Frazer (415) 744-2259
- **Community Involvement**
  Catherine McCracken
  (415) 744-2182 (phone), (415) 744-1796 (fax)
  or mccracken.catherine@epa.gov
- **Media inquiries**
  Randy Wittorp, press officer
  (415) 744-1589

...or leave a message on EPA's **toll-free** line **(800) 231-3075** and your call will be returned.

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